



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/533,302

06/16/2005

Akira Nakashima

IPA-007

4777

32628

7590

10/27/2009

KANESAKA BERNER AND PARTNERS LLP
1700 DIAGONAL RD
SUITE 310
ALEXANDRIA, VA 22314-2848

EXAMINER

MCDONOUGH, JAMES E

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

10/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/533,302
Filing Date: June 16, 2005
Appellant(s): NAKASHIMA ET AL

Manabu Kanesaka
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/24/2008 appealing from the Office action mailed 1/30/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

| | | |
|--------------|-----------------|---------|
| 6,451,436 | KOMATSU et al. | 09-2002 |
| 5,770,275 | RAMAN et al. | 06-1998 |
| 2003/0152510 | SENDEROV et al. | 08-2003 |

| | | |
|---------------|----------------|---------|
| JP 06173054 A | TAGUCHI et al. | 06-1994 |
| 2003/0041779 | BURGER et al. | 03-2003 |

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-7, 10, and 29-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al. (USP 6,451,436) in view of Raman et al. (USP 5,770,275) in view of Senderov et al. (US 2003/0152510) in further view of Taguchi et al. (JP-406,173,054 A).

Regarding claims 1-7 and 29-33

Komatsu teaches a coating liquid for forming films with a low dielectric constant, comprising a tetra alkyl ortho silicate (see formula I) and a chlorosilane (see formula II) (abstract).

Although, Komatsu does not explicitly teach the use of alkoxy silane, Komatsu does teach the use of chlorosilane, however, because Raman teaches organofunctional silanes such as chlorosilanes and that alkyl alkoxysilanes are functionally equivalent (column 7, lines 4-12) and further teach that in an optimized process tetraethyl orthosilicate (TEOS) and methyltrimethoxy (MTMS) silane are used in combination, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Komatsu, by substituting alkyl alkoxy silanes for the chlorosilanes, as suggested by Raman.

Although, Komatsu does not explicitly disclose the use of a tetraalkyl ammonium hydroxide, Senderov teaches that an organic structure directing agent such as

Art Unit: 1793

tetrapropyl ammonium hydroxide can be used, and teaches that this tetraalkyl ammonium hydroxide is preferable because other than their structure directing properties they also provide a source of alkalinity and not only can they hydrolyze and depolymerize silica, but serve to also direct the crystallization process (paragraph 0043), therefore, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Komatsu, by incorporating tetrapropyl ammonium hydroxide, as suggested by Senderov.

Although, Senderov does not explicitly teach the purification of tetraalkyl ammonium hydroxide, Senderov does teach the use of tetraalkyl ammonium hydroxide, however, because Taguchi teaches a process for the high purity preparation of tetraalkyl ammonium hydroxide where, impurities such as alkali metals and halogens are removed (abstract) and it is well known to remove impurities from material feed stocks as even low level impurities can have deleterious effects on electronic components. Even though Taguchi is silent to the exact purity of the tetraalkyl ammonium hydroxide, it would be expected to at least overlap with the claimed range this is especially so since applicants do not teach how they perform this purification process, therefore, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Senderov, by purifying the tetraalkyl ammonium hydroxide, as suggested by Taguchi.

Regarding claim and 34

Raman teaches that the gelling time can be controlled by adjusting the ratio of (TAOS) to (AS) and, teaches specific ratios of 90:10 to 45:55 (TAOS)/(AS) respectively

Art Unit: 1793

(column 8, lines 15-61), which overlaps with the range of the instant claims, therefore, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Komatsu, by adjusting the ratio of (TAOS)/(AS), as suggested by Raman.

Regarding claim and 35

Senderov teaches a TPAOH ratio based on SiO_2 of 0.25 which reads on the instant claims, and teaches that this is a result effective variable and that this value can be adjusted up (paragraph 0108), therefore, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Komatsu, by adjust the amount of (TAOS), (AS) and (TAAOH) relative to each other, as suggested by Senderov.

Regarding claims 37 and 38

These are intended use claims and do not serve to add to the patentability of compositions claims.

Claims 10 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al. (USP 6,451,436) in view of Raman et al. (USP 5,770,275) in view of Senderov et al. (US 2003/0152510) in view of Taguchi et al. (JP-406,173,054 A) as applied to claim 1-9 and 29-35 above, and further in view of Burger et al. (US 2004/0041779).

Regarding claims 10 and 36

The teachings of the references other than Burger et al. have been discussed above.

Burger teaches that silicon coating compositions usually contain less than 35 wt % solids, since effective filming and adhesion of the coating require the addition of further solvents (paragraph 0011), therefore, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of the above reference, by adjusting the amounts of (TAOS) and (AS), to less than 35 wt %, as suggested by Burger.

(10) Response to Argument

Claim 1 is patentable under 35 U.S.C. 103(a)

Appellants argue that examiner combination of Senderov with Taguchi for the teaching of purification of the tetraalkyl ammonium hydroxide constitutes an improper reconstruction of appellants claimed features. This is not persuasive because appellants have failed to articulate a reason for the combination being improper and appellants have failed to argue against the examiners reasoning for combining the reference of Taguchi, which teaches the purification of the tetraalkyl ammonium hydroxide, that even low levels of impurities can have deleterious effects on electronic components.

Appellants argue that Komatsu neither describes nor suggest that “the silicon compound (hydrosylate) and tetraalkyl ammonium hydroxide (TAAOH)” of the present invention are included. This is not persuasive and amounts to an improper piece meal analysis of the references and the rejection is based on a combination of references.

Appellants argue that the removal of impurities from the TAAOH is not disclosed in any of the cited references. This is not persuasive because Taguchi teaches a process for the preparation of high purity TAAOH, and one skilled in the art would expect that a compound of high purity has been purified, and further one of ordinary skill in the art would readily appreciate that impurities can have deleterious effects on the invention and would be motivated to remove them.

Appellants argue that as Taguchi is silent with respect to the purity of the TAAOH and the fact that appellants do not appear to disclose the purification method does not render the recited purity, i.e. the molar ratio of TAOS:AS being in the range of 6/4 to 2/8 and a molar ratio of TAAOH: (TAOS+AS) being in the range of 1/10 to 7/10, prima facie obvious in light of the references that fail to disclose a resultant range. This is not persuasive and it appears appellants have greatly confused the argument, as the purity level of the TAAOH with respect to impurities of alkali metal and halogens, is not related to the final composition formulation containing other ingredients.

Appellants argue that claim 1 is patentable because the reference fail to recite the specific ratio of (TAOS)/(AS). This is not persuasive because appellants have not argued against the examiner reasoning for finding the ratios obvious, further appellants have failed to show any criticality or unexpected results for the claimed range.

Appellants argue that claim 1 is also allowable because of the failure of the asserted combination of references to present any apparent reason to combine the references or modify prior art to create the appellants' allegedly obvious claim elements. This is not persuasive as appellants have failed to point out any errors in the reasoning

Art Unit: 1793

for the combination, and it is noted that the examiner has provided reasoning for the combination of references.

Claim 2 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 3 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 4 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 5 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 6 is patentable under 35 U.S.C. 103(a)

Appellants argue that the references are silent with respect to the purity of the TAAOH. While the references do not teach the exact purity of the TAAOH does teach the purification of TAAOH, and one skilled in the art would expect that the highly purified TAAOH as taught by Taguchi would meet these limitations, absent any evidence to the contrary. If appellants purification method is superior to that of the prior art and can outperform this purification method, appellants are requested to describe this "novel" purification method that allows for purity levels of TAAOH that are allegedly

Art Unit: 1793

unobtainable by the prior art methods, as appellants are arguing that their purification level is novel.

Claim 7 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 29 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 30 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 31 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 32 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 33 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 34 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 35 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 37 is patentable under 35 U.S.C. 103(a)

This limitation appears to be dependent on the purity level of the TAAOH, and since the rejection takes purification of the TAAOH into account, it would be expected to possess these properties absent any evidence to the contrary.

Claim 38 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

Claim 10 is patentable under 35 U.S.C. 103(a)

Appellants argue that the rejection does not teach the limitation 2-40 %, however, the reference of Burger teaches that it is usually less than 35 %, which would appear to read directly on the claim range, as 35 is between 2 and 40.

Claim 36 is patentable under 35 U.S.C. 103(a)

These arguments have been fully considered, but are not persuasive for the same reasons given above.

(11) Related Proceeding(s) Appendix

Art Unit: 1793

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

James Eric McDonough, Junior Patent Examiner, Art Unit 1793

/James Eric McDonough/

Conferees:

Jerry Lorengo

/J.A. LORENZO/

Supervisory Patent Examiner, Art Unit 1793

/Christopher A. Fiorilla/

Chris Fiorilla

Supervisory Patent Examiner, Art Unit 1700